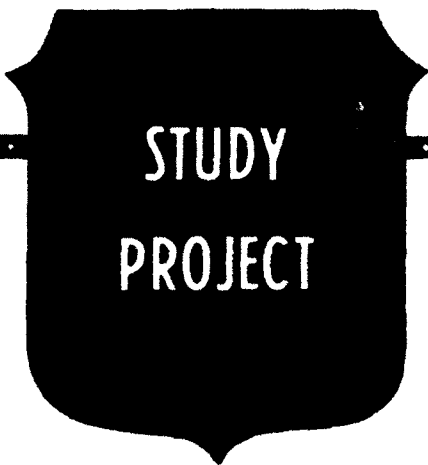


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**IN SEARCH OF  
MEASURES OF EFFECTIVENESS  
FOR COUNTERDRUG OPERATIONS**

BY

**MR. WILLIAM H. DUNN**  
United States Department of the Army Civilian

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USAWC CLASS OF 1993



U.S. ARMY WAR COLLEGE, CARLISLE BARRACKS, PA 17013-5050

93 5 25 172

93-11767



## REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT Distribution Statement A: Approved for public release. Distribution is unlimited.		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
4. PERFORMING ORGANIZATION REPORT NUMBER(S)			7a. NAME OF MONITORING ORGANIZATION		
6a. NAME OF PERFORMING ORGANIZATION U.S. Army War College		6b. OFFICE SYMBOL (If applicable)	7b. ADDRESS (City, State, and ZIP Code)		
6c. ADDRESS (City, State, and ZIP Code) Carlisle Barracks, PA 17013-5050			9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION		8b. OFFICE SYMBOL (If applicable)	10. SOURCE OF FUNDING NUMBERS		
8c. ADDRESS (City, State, and ZIP Code)			PROGRAM ELEMENT NO	PROJECT NO	TASK NO
			WORK UNIT ACCESSION NO		
11. TITLE (Include Security Classification) In Search of Measures of Effectiveness for Counter Drug Operations					
12. PERSONAL AUTHOR(S) William H. Dunn					
13a. TYPE OF REPORT Study Project		13b. TIME COVERED FROM _____ TO _____		14. DATE OF REPORT (Year, Month, Day) 1993 April 15	
				15. PAGE COUNT 46	
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP			
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
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20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL JAMES E. TRINNAMAN			22b. TELEPHONE (Include Area Code) (717) 245-4521		22c. OFFICE SYMBOL AWCAW

19. ABSTRACT continued

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## USAWC MILITARY STUDIES PROGRAM PAPER

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### IN SEARCH OF MEASURES OF EFFECTIVENESS FOR COUNTERDRUG OPERATIONS

#### AN INDIVIDUAL STUDY PROJECT

by

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## ABSTRACT

**AUTHOR:** Mr. William H. Dunn, Department of Army Civilian

**TITLE:** In Search of Measures of Effectiveness for Counterdrug Operations

**FORMAT:** Individual Study Project

**DATE:** 15 April 1993 **PAGES:** 40 **CLASSIFICATION:** Unclassified

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## INTRODUCTION

"I wish I were back as the brigade commander in my old mech division," thought Colonel Charles Dunangon, United States Army Infantry, as he nervously fidgeted with his viewgraph transparencies. He and Lieutenant Colonel Claudia Douhet, United States Air Force, sat waiting in anticipation that the morning briefing to the new Director of the Office of National Drug Control Policy would go smoothly. The chairperson of the Department of Defense (DOD) Counterdrug (CD) Study Team had selected them to report on the Team's recent analysis of DOD's contribution to national CD operations and the resultant measures of effectiveness (MOEs.) Dunangon's specialty codes, 54/49, designated him as being a military planner with an alternate of operations research/systems analysis. But his zeal centered on leading troops, not continuing as the CD analyst he'd become the past three years. "I'll bet Clausewitz never had to brief a civilian," he continued to his imaginary debater. "Oh well, it could be worse. This assignment will be over by the end of this summer, I get a lot of decent temporary duty to the southwest border, and I do have job satisfaction. Recently for only the second time since 1970, the cocaine street price has increased several thousand dollars per kilo which indicates a potential shortfall in availability.<sup>1</sup> I believe our military operations to reduce drug supply through interdiction are making an impact."

"You may go in now," interrupted a pleasant voice as the secretary rose to escort the military members into the executive conference room. The incoming President had replaced the previous administration's director with Dr. Amos Avagadro, an energetic extrovert who had tirelessly campaigned to deliver the Hispanic vote in the metropolitan New York City area. Avagadro was not without respectable credentials however. His undergraduate work was in mathematics while his masters and doctorate degrees were in Public Policy. His career had

blossomed as a successful Brooklyn City Administrator. He had a reputation for toughness against drug dealers and he displayed a strong personal commitment to ridding drugs from the nation's neighborhoods.

"Dr. Avagadro, I am COL Dunangon from United States Forces Command (FORSCOM) at Fort McPherson, Georgia and this is LT COL Douhet from the North American Aerospace Defense Command (NORAD) in Colorado Springs, Colorado. We are here at your request on behalf of the DOD CD Study Team."

"Good morning to you both. As you know, the reason I asked you here is to give me a better understanding of how DOD is attacking the drug war and the methods you have chosen to evaluate effectiveness. Other agencies involved in CD efforts have already given their presentations."

"Yes sir. This will be an information briefing. Our examination of DOD CD operations and the development of needed MOEs is centered on the use of the systems approach. To illustrate this methodology, we will begin with a background summary followed by a broad overview of general systems theory. We will discuss where we see the nation's CD effort is currently, where we believe we need to be going, and describe the measurable gap between these current and desired states. In order to bridge this gap, we will provide a short primer on what constitutes a good MOE, trace the CD strategy objectives from national to operational level, and describe in detail two examples of military CD support operations. Finally we will report the types of data currently being collected and provide the MOEs which relate to DOD's attainment of their strategy objectives."

"And I will integrate your DOD information with the rest of the CD community by giving you my views on where I think the nation's CD efforts should be focused," said the Director. "As you are aware, one of President Clinton's first actions was cutback of the White House staff. He recommended that my office be reduced from 146 positions down to 25.<sup>2</sup> If this is indicative that the President is de-escalating the drug war, then I must act to provide the needed direction. With that as a backdrop, please proceed with the briefing."

### **BACKGROUND**

COL Dunangon began the briefing. "Sir, although the state of the economy was the paramount issue in the 1992 Presidential campaign, reduction of drug use continues to command a high ranking on our list of national priorities. In the past, the drug problem was often categorized in two ways: as a domestic issue if the focus was on reducing demand, or as a foreign policy issue if the attention was on reducing supply. However in reality, the distinction between reduction of demand and reduction of supply is often artificial and meaningless. In fact, demand reduction through deterrence may be law enforcement's main effect.<sup>3</sup> Former President Bush presented his National Drug Control Strategy to the public for the first time in September, 1989, when he outlined his program for America's 'War on Drugs.' Trickle-down policy and guidance for the military contribution to the CD effort is manifested in the National Security Strategy, National Military Strategy and various Congressional acts, joint military publications, CD plans at individual unified and specified commands, and memorandums. Because of these new policies and guidance, traditional roles and missions for the armed services have been amended to include military participation. The high visibility of DOD resource investments requires that reporting mechanisms be established to furnish information to senior

level decision makers and Congress. These reporting mechanisms demand the establishment of MOEs which can serve as indicators of the impact of stepped-up military intervention in the drug war."

"Colonel, so far our beliefs are not contradictory. Indeed, the public is perplexed when attempting to determine if we are making positive progress to reduce drug usage based on a myriad of conflicting information. During the recent campaign, former President Bush cited examples of success while we Democrats submitted contradictory evidence that usage patterns were increasing."<sup>4</sup>

### **GENERAL SYSTEMS THEORY**

"Yes sir. Now let me talk about our methodology, how we employed a systems approach to examine DOD CD efforts and how they relate to MOEs. In the late 1940's, researchers noted that similar principles relating to 'the whole' and 'dynamic interaction' were observed independently in the physical sciences, social sciences, mathematics, economics, and other fields. Ludwig von Bertalanffy, a biologist, postulated these evolving general principles into the concept of General Systems Theory (GST). A few key GST terms need to be defined. A 'system' is defined as any set of components which can be seen to be working together for the overall objective of the whole. 'Components' are the primary elements which comprise a system. 'Environment' includes all factors which have an influence on the effectiveness of a system, but which are not necessarily controllable. 'Hierarchy' is the relative relationship between systems and their components in terms of supra- and subordination."<sup>5</sup>

"A system's components may be systems in and of themselves. If this is the case, these components may be called subsystems. Similarly, the system under investigation may itself be

a subsystem of a larger system. This leads to a fundamental dilemma in GST, namely which system should be chosen to study? Said another way, which is the system and which are the components? In the CD world for example, a possible system could be the 'DOD efforts and resources targeted to curb supply of drugs system.' However, this system is a subsystem of the overall 'multi-agency curb supply system' which is in turn a subsystem of the overall 'multi-agency curb demand and curb supply system.' It can be imagined that this upward hierarchy search will ultimately result in the 'drug universe system' (see Figure 1).

"Suboptimization may occur if the system under study is chosen too low in the hierarchy level. To remedy this, the general rule of thumb is to determine the chief decisionmaker (CDM)

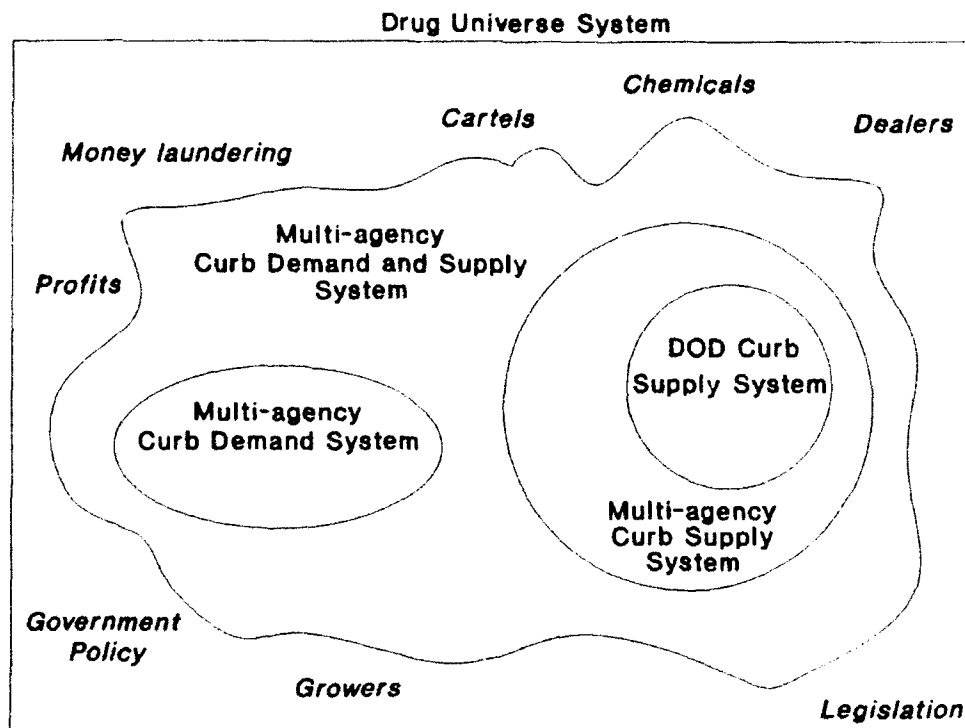


Figure 1. Drug Universe System

for whom the investigation is being performed. This person, or group of persons, also has the authority and resources necessary to affect change and implement study recommendations. In the CD case, the President (with support from Congress, as the resource supplier) could be chosen as the CDM since he is ultimately responsible for determining the focus of national effort. However, we believe that the President is too busy with other pressing domestic and foreign policy issues to be the ultimate CDM and that he must delegate his CDM responsibility for investigating effectiveness of the CD operations to a lower level. Similarly, although the Secretary of Defense (SecDef) is responsible for DOD CD efforts, the SecDef level is also deemed as improper because it addresses mainly the drug supply system and doesn't truly represent other factors such as demand which will influence the overall national objective of reducing drug use. Therefore, we believe a system which comprises the 'entire' CD hierarchy should be established. We believe the CDM should be you, Dr. Avagadro, because of your role as manager of international and domestic CD functions for the Executive Branch, and because you have the authority to coordinate and oversee the National Drug Control Strategy.<sup>6</sup> In addition, you have control over the budget for both demand reduction and supply reduction. The demand reduction function currently receives approximately 30 percent of the annual Federal budget and supply reduction receives 70 percent.<sup>7</sup> Therefore, we have focused our study team efforts on a system that has you as the CDM since you have the capability to prioritize resources as well as make policy."

Avagadro nodded. "I'm in full agreement. We should identify the 'drug universe system' as the system under study so that I can provide consistency in policy and guidance."

"Fine, sir. A fundamental concept of GST is that it is necessary to describe the characteristics of the current state of the system under study and where we desire it to be. The current state of the 'drug universe system' has three characteristics: Rampant illegal drug use prevails; a variety of agencies are conducting 'stovepipe' CD efforts based on their own agendas; and, there is minimal unity of effort. The desired state has one overall characteristic:

*Drug abuse and drug traffic are reduced to a level which is acceptable to United States society and which does not seriously degrade our national security, our economic well-being, and our social order.<sup>8</sup>*

The next step in applying GST is to determine how we can transition from the current to the desired state. In other words, what is the measurable gap? In order to achieve the desired state, we must develop a seamless CD program where all agencies contribute to a unified system effort yet autonomy of the agencies as subsystems is preserved. Further, in order to chart progress toward reaching the desired objective, MOEs must be developed for each subsystem and also for the overall system to serve as meaningful indicators.

### **MEASURES OF EFFECTIVENESS**

"Before developing measures of effectiveness (MOEs) for selection, we will establish a definition, present a discussion of MOE selection, and provide some cautionary notes on their indiscriminate use. The term 'measures of effectiveness' connotes different meanings dependent on usage, context, and audience. Generally, an MOE can be defined as a quantitative expression which compares the effectiveness of alternatives or the effectiveness of continued operations. **MOEs measure how well an alternative meets an operational objective or need.** In our CD case, there are DOD objectives and other agency objectives all of which must complement the national objective. MOEs will be developed to correlate with all of these objectives. It should

be noted that the proper choice of MOEs may be difficult, but decisionmakers will often mandate use of MOEs nevertheless. MOEs are specifically used by the DOD in development of weapon systems to compare potential solutions for countering recognized threat systems, thus allowing decisionmakers to discriminate among the competing courses of action."

Dr. Avagadro concurred. "As a decisionmaker, I am keenly aware of choosing between recommended alternatives. Usually choices describe costs, benefits, and counterpoints if my staff has done its analysis correctly."

"Indeed you're right," said COL Dunangon. "I did a tour in the Army Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS) at the Pentagon. DOD requires preparation of a Cost and Operational Effectiveness Analysis (COEA) to illustrate and assess the advantages and disadvantages of acquisition alternatives being considered. As an ODCSOPS analyst, I recommended MOEs for selection which related to system performance and improvement in capabilities. DOD initially established some guidelines<sup>9</sup> in the preparation and selection of MOEs for COEAs, however these guidelines have value for establishing MOEs in other contexts as well, such as CD:

- Comparable measures for each alternative are evaluated against a baseline, generally the outcome that would exist within currently programmed capabilities.
- Measures should be selected which relate directly to the system's performance characteristics and to mission accomplishment. Decisionmakers need to know the contribution of the system to the outcome of battle, not just how far it can shoot or how fast it can fly.
- MOEs should be quantitative and measurable.

- Objective measures should be used where feasible to minimize the contamination of personal bias.

- Analysts should refrain from using schemes in which several MOEs are weighted and combined into an overall score."

"What about ratio data?" asked Avagadro. "If the numerator is much larger than the denominator, then small changes in the denominator may make very great ratio differences."

"You are correct. Ratios should be used with caution and only where appropriate. Ratios may mask important differences and can be misleading, particularly if uncertainty in the 'exact' measurement of the MOE exists. Especially discouraged are ratios combining MOEs and cost such as 'minimum cost per kill.' It has been shown through analysis and wargaming<sup>10</sup> that selecting a defensive strategy based on minimum cost per kill is not optimum for battle outcome. As an example, one can imagine that the relatively low cost of an artillery weapon may dominate among the candidate alternative weapon systems for the MOE 'minimum cost per kill', yet a force made up of artillery weapons would certainly not deliver the greatest attrition in the close-battle against an armored division foe. Indeed, the battle outcome may significantly improve using an 'optimal' strategy, one that takes into account the interaction of weapons and forces. At any rate, it is usually beneficial to show effectiveness and costs separately, not as ratios.

- The rationale for the selection of an MOE should be documented. The rationale should include definition, dimension, limits, decisional relevance, associated measures if any exist, and a methodology for the necessary data collection to compute the MOE."

"Was the concept of MOEs developed by the military," asked the Director? "They are the ones who are the main advocates."

LT COL Douhet responded to the question. "Sir, most likely MOEs were originally conceived in the early days of operations research which traces its roots to the British in World War II. The British government recruited some of the leading academics to study the nature of military operations in the hope that new insight and assistance could be found. One of their first findings was the importance of selecting proper quantifiable measures that can be investigated and that these measures must be indicative of the real problem or objective. As an illustration,<sup>11</sup> many British merchant ships were sunk or damaged in early World War II by enemy air attacks in the Mediterranean. The military solution was to provide merchant ships with anti-aircraft (AA) guns and crews. Decisionmakers who allocated scarce AA resources wanted to determine if the AA assets were making a difference or if they should be reallocated to other sectors in the theater. Analysis using the MOE 'destruction of attacking aircraft' showed that only 4 percent of all attacking aircraft were being shot down. This 'poor' performance indicated that the AA could be utilized more effectively elsewhere. However, further refinement of this problem gave way to the notion that the AA was not necessarily to shoot down aircraft, but rather to protect the ships they were on. When the MOE of interest was changed to 'survival of merchant shipping', it became apparent that AA was making a substantial difference. Of the ships attacked, 25 percent of those without AA capability had been sunk whereas only 10 percent of the ships with AA were lost during the same time and under the same conditions. The choice of objective and MOE are critical and fundamental--there is no utility in providing the right answer to the wrong question!"

"Exactly, and at the present time the desired state characteristic of the 'drug universe system' is what I see as the real objective," agreed Dr. Avagadro.

COL Dunangon was clearly impressed with the extent to which this decisionmaker was adopting the systems approach. "Yes sir, and we must develop MOEs that relate to it. In the past this was not always achieved and much public criticism was generated. For example, the most common MOE in Vietnam was 'body count.' Every night, the six o'clock news would broadcast the day's body count. It was not unusual for the enemy-to-friendly body count ratio to be at least 10:1. What information was imparted by this MOE? Logic dictated that this war of attrition, over time, would wear the enemy down. However, as the war proceeded and it became more obvious that the United States was not going to end the war with decisive victory, the body count MOE became meaningless and totally impersonal. Counting bodies, when it is unknown how many combatants (and surrogates) are in the total population, is not informative to a decisionmaker in determining how the war is going. I refer to this uncertainty in dealing with unknown populations as the 'tip of the iceberg' syndrome. Similarly, reporting the number of pounds/kilograms of drugs seized, when the composition and amounts of the total drug inventory (and replenishment capability) are unknown, does not indicate how the overall CD war is going. Body count and drug seizures are measurable and quantifiable but are not the MOE for the 'real' objective.

"Similarly, the street price of drugs has not been a reliable measure of our successes. The aftermath of a big drug bust should have decreased availability, lowered purity, and increased the street price. But in general, prices in the illegal drug market have not responded as intended to increases in drug enforcement.<sup>12</sup> A possible reason for this is that the supply side mobilizes its reserves to pick up the slack when adversity occurs--partly because of the competition between dealers. No matter how much you interdict, there's much more out there

in the pipelines. However, recent dramatic cocaine price hikes have given a glimmer of hope that some sea state change may have occurred.

### AUDIT TRAIL OF DOD OBJECTIVES

"I have been pressing the fact that MOEs must relate to the objectives under study," continued COL Dunangon. "Turning to military CD operations, we will trace an audit trail of CD objectives in order to develop and correlate needed MOEs. There is a myriad of CD policy directives at all levels, but we will only highlight the ones we feel are significant to DOD.

"Starting from the highest level, the National Security Strategy (NSS) of the United States lists as one of the Interests and Objectives in the 1990's:

The United States seeks, whenever possible in concert with its allies, to reduce the flow of illegal drugs into the United States by encouraging reduction in foreign production, combatting international traffickers, and reducing demand at home.<sup>13</sup>

The NSS has components which include political, economic, diplomatic, and military strategy.

"The National Military Strategy (NMS) of the United States addresses the military component of the NSS and incorporates additional issues from the Defense Planning Guidance and other policy documents. The NMS has four pillars: Strategic Deterrence and Defense, Forward Presence, Crisis Response, and Reconstitution. Under Forward Presence, the NMS states<sup>14</sup> that 'we (the military) are charged to help lead the attack on the supply of illegal drugs from abroad.' It must be stressed that the NSS objectives of *demand reduction* and *supply reduction* have been transmitted through the NMS as only supply reduction! Thus, the NMS has transferred an overall national objective into a military objective which the DOD has the responsibility, authority, and resources to accomplish. Although the 'demand reduction' objective is not transferred, the DOD has made demand reduction--abstinence from drugs, a

priority for its own military members, civilian employees, and defense contractors. Through education and testing, an 88 percent reduction of drug use has been achieved since 1980.<sup>15</sup> Further, DOD conducts drug education through its DOD Dependent Schools awareness and prevention programs.

"Explicit guidance was promulgated in the National Defense Authorization Act (NDAA) of 1989 which is still in effect today. For the first time, the NDAA assigned DOD three significant responsibilities:

DOD will:

Take the lead for the detection and monitoring of aerial and maritime transit into the United States.

Integrate those US command, control, communications, and intelligence assets which are dedicated in whole or in part to drug interdiction into an effective communications network.

Approve and fund State Governors plans for the National Guard to expand their support of drug interdiction and enforcement operations with the law enforcement agencies (LEAs).<sup>16</sup>

"Thus the DOD objective of supply reduction, as stated in the NMS, has been further refined by the NDAA to *detection and monitoring of aerial and maritime transit*, plus a new objective of C<sup>3</sup>I network integration has been added. To reflect this new direction, Title 10 United States Code, Chapter 3, Section 124, was changed to incorporate: 'Detection and Monitoring of aerial and maritime transit of illegal drugs: DOD to be lead agency.'<sup>17</sup>

"In September 1989, the SecDef released a guidance memorandum which stated that DOD would assist in the attack on the supply of drugs at the source, in transit, and within the United States:

- At the source. DOD will execute security assistance programs in coordination with the Department of State. The US Armed Forces will provide foreign forces

assistance in training, reconnaissance, command and control, planning, logistics, medical support, and civic action. An improved intelligence collection effort will assist foreign governments and provide for the next phase of defense.

- In transit. With DOD as the lead agency in detection and monitoring aerial and maritime transit, the Commanders in Chief (CINCs) of unified and specified commands are directed to elevate the mission priority of CD within their commands.

- Within the United States. DOD will support requests from local LEAs and the National Guard in non-Federalized status. Also, DOD will assist Department of Justice (DOJ) in training Federal, State, and local personnel in the conduct of rehabilitation-oriented training camps and providing overflow facilities for incarceration.<sup>18</sup>

In summary, the SecDef guidance offers further breakdown in exactly 'what is the support available' plus it directs elevation of CINC priorities and offers DOD resources and facilities to assist DOJ. Thus, the audit trail has proceeded from the highest national levels through the SecDef and is now an elevated priority to the CINCs. The aggregation of CD objectives for DOD is reflected in Figure 2."

"So where do you and MOEs fit into this, Colonel?"

"Dr. Avagadro, decisionmakers in DOD want to review CD trends to determine what works, what doesn't, and what additional measures need to be taken. Other oversight agencies such as Congress, through the General Accounting Office, want to determine if the resources allocated to DOD are being used wisely and efficiently and if there is any progress being made

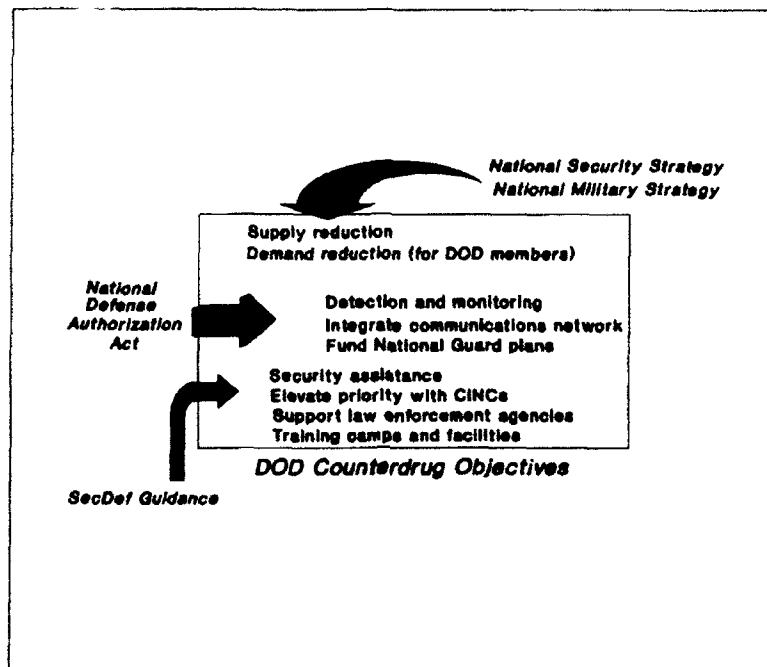


Figure 2. DOD counterdrug objectives

in the CD effort. At the same time, DOD needs MOEs to justify its own expenditure of public funds and rationale for any future budget requests. These desires and wishes are what drive the need for appropriate MOEs.

### MOEs FOR DOD COUNTERDRUG OPERATIONS

"The Chairman of the Joint Chiefs of Staff has assigned major CD support missions based on area of responsibility to the CINCs of Atlantic Command (LANTCOM), Pacific Command (PACOM), Southern Command (SOUTHCOM), Forces Command (FORSCOM), and North American Aerospace Defense Command (NORAD). Two examples of how CINCs have approached this problem will now be explored. I will relate my experiences at FORSCOM and LT COL Douhet will follow with her brief of NORAD accomplishments.

"My boss, the CINC of the US Forces Command (CINCFOR) at Fort McPherson, Georgia, has responsibility for CD within the continental United States (CONUS). Additionally, since he is the Army component of LANTCOM (COMARLANT), he provides support to LANTCOM CD operations, primarily in the Caribbean Basin. The CINCFOR's vision statement<sup>19</sup> acknowledges CD strategy is the latest form of the 'total or coalition force' which is a multinational, multi-agency, multi-service effort and that many of the new players are unfamiliar with CINCFOR (or Army) capabilities. CINCFOR envisions building a reputation for responsive and appropriate support while utilizing the 'unique training opportunities' that CD missions represent. He goes beyond reflecting on supply reduction and sees the ability for the military to assist in demand reduction through its available educational programs. These educational programs, provided to civil authorities within the applicable legal environment, will support rehabilitation endeavors. Ultimately, he foresees that diminished illicit drug use will result in reduced military involvement.

"I am Chief of the CINCFOR's staff for CD. We have translated his vision statement to five axes which support both supply reduction and demand reduction. The first four axes are to provide operational, intelligence, planning, and training support to LEAs, other CINCs, cooperating friendly governments, state governors, and local authorities for supply reduction. The fifth axis is demand reduction throughout the FORSCOM community. The caveats to the four supply reduction efforts are that they must be within the confines of the law, comply with intent of Congress, enhance combat readiness, and be coordinated with the National Guard.<sup>20</sup>

"A central focus for our MOE development effort is data. The paramount theme is that data should be recorded, manipulated, and retrieved in a relational data base. With a nationwide

data base, trends and MOEs can be developed according to current desires or agendas, but additional MOEs can later be computed if necessary, as in the British WW II shipping example. It is not within the scope of this effort to develop the exhaustive list of data and MOEs that could be applied to every CINC and supporting agency. Rather, an example set of data and MOEs will be developed and correlated to the objectives which have been established for a typical CINC, in this case CINCFOR using the five axes which support his vision statement.

**"Operational support.** Ground transportation, air transportation, reconnaissance, engineer, communications, maintenance, and logistics are components of CINCFOR operational support.<sup>21</sup> The number of CD missions conducted in 1992 by CINCFOR increased by 1,110 percent over 1989 efforts.<sup>22</sup> MOEs to indicate trends in ground transportation and air transportation, in support of LEAs for example, are:

- Number of LEA mission requests per calendar quarter
- Percentage of mission requests supported
- Total miles driven/flown (OPTEMPO measure) for missions supported per quarter
- Mean miles driven/flown per mission
- Probability of support success, calculated by dividing number of successfully supported missions by total number of missions requested. Support success is jointly defined by the transporters and LEA representative[s] transported for each mission. This definition should not define a success based on pounds of drugs seized, arrests, or property seizures. Rather it is a mission that

was successfully supported by DOD in terms of time, place, and operation.

"The element of time for both scheduled and unscheduled mission requests can also be brought to bear on MOE determination. If the LEA request schedules a mission, the time that the DOD transporter was late or unavailable should be recorded. For a request which is an unscheduled event such as a contingency or emergency, the time elapsed from request to arrival indicates responsiveness and readiness of the support. MOEs are:

- Percentage of missions requested for which support was available within time constraints
- Median length of time support requested was late for scheduled missions
- Median waiting time from request to arrival for contingency or emergency events

"Typical MOEs relating to ground or air reconnaissance are:

- Number of reconnaissance missions conducted
- Mean time on target (how long was the duration of the reconnaissance portion of the missions?)
- Mean number of targets acquired per mission
- Percentage of targets identified as potential traffickers, given acquisition
- Percentage of targets handed off to LEAs for intercept, given identification

- Number of targets which turn back (deterrence)

"Engineer, communications, maintenance, and logistics support. Logistics support include the equipment, supplies, repair parts, personnel, medical and other applicable military capabilities to support LEAs, state governors, and cooperating host nations. These categories complicate inclusion as successful support missions since they are performed whether or not there are any missions even performed. However, for workload considerations (OPTEMPO for support functions), MOEs are:

- Number of engineer, communications, maintenance, and logistics requests per quarter
- Mean number of personnel performing support
- Percentage of requests successfully supported
- Median delay time in required support

"A qualitative and quantitative way of combining several of these factors has been used by CINCFOR's Joint Task Force (JTF) Six at Fort Bliss, Texas. An assessment is completed based on responses by LEA (or state governor or host nation) representatives to a JTF Six questionnaire for each operational mission. The questionnaire asks LEAs to score the following mission elements on a scale from 0-4: whether or not the LEA objective was met, the impact on resources, whether LEA would repeat the mission for a similar threat, the C3I execution, LEA's perception of the support unit, timeliness of unit support, planning by support unit, LEA training benefit, support unit morale, the LEA-unit relationship, and the overall mean. MOEs are the mean scores for these factors for a calendar quarter which are interpreted as indicators

of multi-agency effectiveness and customer satisfaction. An example<sup>23</sup> of these questionnaire results for LEA assessment is shown in Figure 3.

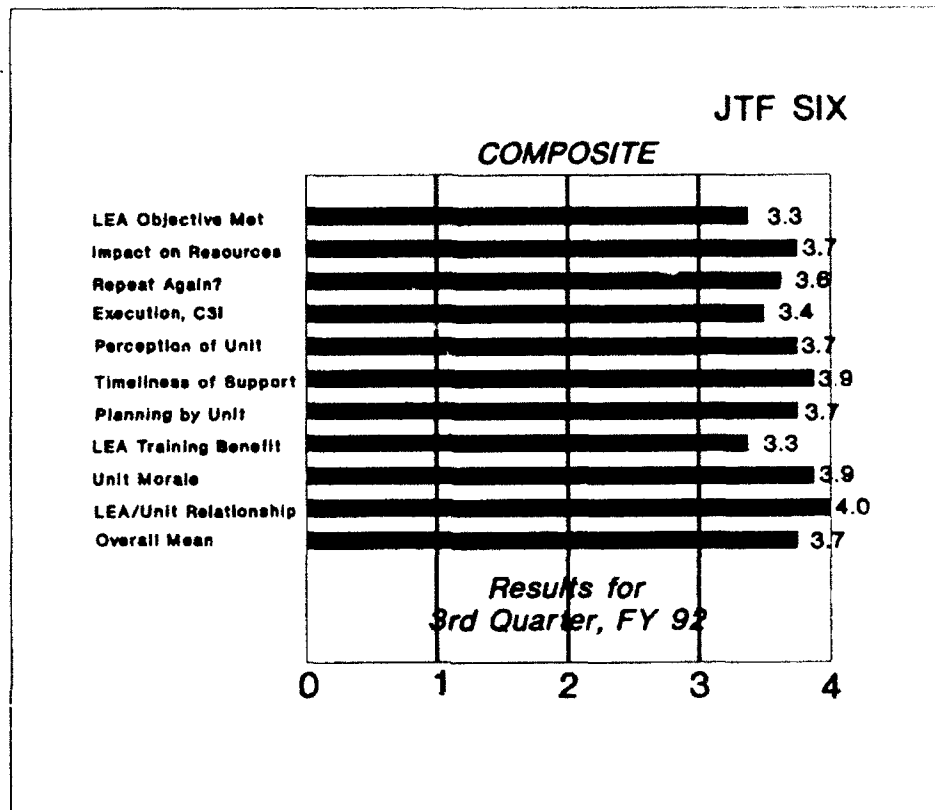


Figure 3. LEA assessment

**"Intelligence support.** LEAs, state governors, and host nations require intelligence support to conduct their operations. Examples of intelligence support are the collection, analysis, production, dissemination, and retrievability of drug-related intelligence. Also included are intelligence logistics such as computer data base management and linguistics support. The Defense Intelligence Agency supports intelligence efforts at the national level and the CINCs

support the operational/tactical level. For host nations, the CINCs provide Tactical Analysis Teams to be the focal point for DOD CD intelligence support and the link to DOD detection and monitoring efforts.<sup>24</sup>

**"MOEs for intelligence support are:**

- Number of intelligence support requests per quarter
- Percentage of intelligence support requests supported
- Number of intelligence products provided
- Assessment of questionnaire responses which indicates the quality and timeliness of the intelligence support provided to the LEA, host nation, or state governor missions.

**"Planning support.** Planning is an area that the military has done extremely well and has high payoff potential for support to LEAs, state governors, and host nations. Military planning efforts such as forecasting, determining equipment acquisitions, development of strategy, campaign planning, communications, and intelligence preparation of the battlefield can all apply to CD as well. Planning effectiveness is difficult to single out since it is a component of operational and intelligence support; however, MOEs are the assessment of questionnaire responses relating to planning which have been solicited from LEAs, state governors, and host nations.

**"Training support.** The primary definition of Training Support is training which (1) complements equipment, systems, and other capabilities which the U.S. government provides to foreign governments, or (2) assists LEAs and state governors. Foreign forces training is usually in the form of mobile training teams (MTTs) which conduct traditional military training

skills, such as light infantry tactics, riverine operations, maintenance and logistics, aviation skills, communications, night maneuver, navigation, and intelligence gathering. Direct data on the effectiveness of training support applicable to CD is virtually nonexistent, but State Department military attaches report fewer injuries and deaths of foreign forces in South American countries when trained by MTTs.<sup>25</sup> DOD has trained LEA officials in foreign language skills, pilot training, helicopter maintenance, tactical survival, bomb detection, canine drug detection, and riverine operations.<sup>26</sup> MOEs are the assessment of the questionnaire responses solicited from host nation forces, LEAs, and state governors to evaluate the effectiveness of training support provided.

"A spinoff of training support is the value of the training received by US personnel while conducting CD operations that is directly applicable to the mission essential task list (METL) for their unit. For example, a METL for an intelligence ground surveillance radar unit may include target acquisition and target identification. If CD operations provide training value for target acquisition and identification which is comparable to intelligence training received while attending an accredited training course of instruction, then the value is directly applicable to the METL. MOEs are questionnaire responses for individual skills, unit skills, leadership skill development, and non-commissioned officer skill development as part of after-action unit assessments of operational missions. These MOEs are used to reflect the quality of current CD operations in fulfillment of CINCFOR's caveat that combat readiness be enhanced. An example<sup>27</sup> of these questionnaire results for support unit assessment is shown in Figure 4.

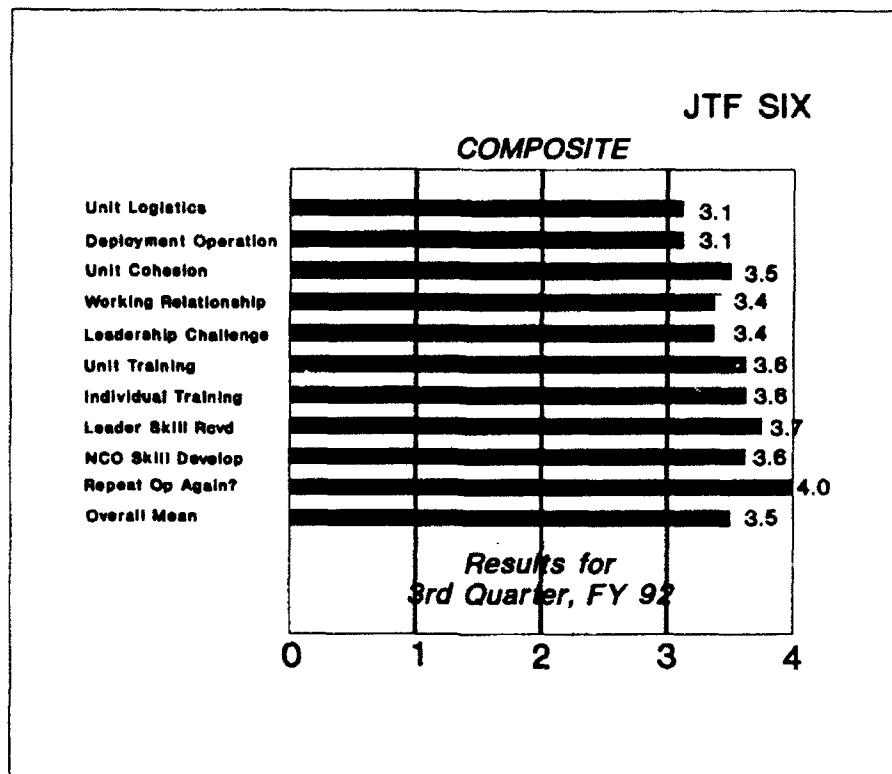


Figure 4. Support unit assessment

"New trends underway are wargaming and simulation for host nation and multi-agency training support. SOUTHCOM, for example, has initiatives utilizing simulation to represent the political, economic, social, and military aspects of the narcotics industry. After players and analysts develop courses of action for training and experimentation, simulation output provides valuable insight of the impact and interaction of individual or combined CD operations and the subsequent reaction by the narcotics industry.

**"Demand Reduction.** FORSCOM demand reduction is performed in conjunction with Army Regulation 600-85 'Alcohol and Drug Abuse Prevention and Control Program.'<sup>28</sup> This

program has its own reporting requirements and the MOE indicates percentage decrease of usage through education and testing.

"That ends the FORSCOM example. LT COL Douhet will now detail the second example from CINCNORAD."

"Sir, CINCNORAD's CD mission is the surveillance and control of US and Canadian airspace by conducting operations to detect and monitor suspected aerial drug traffic. CINCNORAD also integrates into the counternarcotics command and control network and supports the activities of other federal agencies. We collect real-time intelligence using a variety of radar sensors such as tethered aerostats, the Caribbean Basin Radar Network, the over-the-horizon backscatter radar, and the Airborne Warning and Control System (AWACS). Our long range sensor strategy is to track aircraft from their origin to destination. On-board controllers pass aircraft track data from AWACS to ground-based intelligence centers for fusion and relay to LEAs for apprehension, detention, and seizure.<sup>29</sup> We obtain timely identification of routine legitimate traffic and facilitate rapid response for suspicious flights. A side benefit of AWACS is its ability to use the origin-to-destination data to identify airfields both inside and outside the United States borders which are used for drug activity. MOEs are:

- Number of LEA requests for support per calendar quarter
- Percentage of requests supported
- Mean AWACS flight hours (OPTEMPO)
- Mean number of sensor person-days of operation
- Mean number of low-flier tracks observed per mission

- Percentage of low-flier tracks identified as potential traffickers, given observation
- Percentage of low-flier tracks handed over to LEAs, given identification
- Percentage of low-fliers which 'turn back' (a measure of deterrence)

NORAD also benefits from operational mission feedback questionnaires from the LEAs on the degree to which the LEAs consider the mission a NORAD support success."

Douhet continued. "Pounds of drugs seized should not be used in conjunction with NORAD MOEs to indicate the end result of the handoff to LEAs. Pounds of drugs seized are not applicable to DOD because it is not DOD's mission to seize drugs. However, it may be a viable MOE for the customs people, the local police, Drug Enforcement Agency, and others whose mission involves seizure and apprehension."

COL Dunangon followed. "The MOEs which we just described are at the CINC level. CINCs with seaborne detection and monitoring missions have MOEs similar to NORAD except from a maritime viewpoint. Each CINC has MOEs that are common to all, for example percentage of mission requests supported, and each CINC may have unique ones. The common ones can be 'rolled up' to the SecDef level by ensuring that the supporting data is in the relational data base. There is an initiative in DOD presently underway called Corporate Information Management (CIM). One of CIM's objectives is the standardization of data elements. CD data elements that will be used for MOEs need to be standardized to establish common data names, formats, and most importantly, data definitions so that they will convey

the same meaning to all people. After standardization, CD data elements should subsequently be entered into the DOD Data Dictionary. By doing so, common CD data can be combined at the SecDef level to obtain DOD corporate MOEs."

"I'll bet that DOD doesn't find these MOEs very exciting. Most people want to see some tangible results like pounds of drugs seized, arrests, convictions, and that sort of thing," said Avagadro. "But, as you described in your systems approach, DOD's role is mainly detection and monitoring with support to other agencies."

"Right again sir. What the DOD MOEs do is gauge success and gain insight of the DOD support contributions themselves. What the DOD MOEs don't do is indicate if our nation is winning the war on drugs. That leads us to our closing remarks.

"We have utilized the systems approach because DOD is only a component of the 'drug universe system'. The MOEs that DOD has developed are important for our own use but cannot be directly translated to the national CD objective of reducing drug abuse to an acceptable level. We believe that we need to continue our work with the entire CD community to develop the ultimate MOE(s) which will consolidate demand reduction and supply reduction elements. We also believe that the community should adopt our relational data base and develop common data elements."

### **BEYOND DOD**

Avagadro seemed pleased. "From the military standpoint you have covered your aspects of CD which are mainly concerned with supply reduction, and the other agencies' representatives have briefed me on the roles that they play. But the portion of your briefing I am most excited about is your use of GST. I have been searching for a methodology that will permit me to make

my vision a reality. In the larger sense, your utilization of GST has given me the framework upon which to build a senior level multi-agency task force to serve as a steering committee to lead the national CD program. The steering committee will integrate all agencies collective efforts and provide an overall synergistic effect. Each agency will have autonomy to conduct their operations as long as their overall efforts contribute toward the whole. Let me discuss some of the achievements which other agencies have briefed me on to show you what I mean.

"Regarding supply, shortly after President Bush's strategy was released in 1989, he met with presidents from the three coca producing countries Peru, Colombia, and Bolivia. This February 1990 meeting in Cartagena, Colombia, produced the 'Andean Strategy.' It established a basis of cooperation for the multilateral CD effort to reduce production, consumption, and trafficking. The four near-term goals of the strategy are condensed as (1) strengthening each country's political commitment and capability, (2) increasing the effectiveness of host country law enforcement, (3) disrupting and dismantling trafficking operations within each country, and (4) strengthening each legitimate economy.<sup>30</sup> Using the terminology of your systems approach, these are elements under the category of external environment. The United States Government has had checkered success in achievement of these goals. One reason for this is that we haven't always attacked the problem at the central reference point. Doesn't the military have a term for this?"

"Yes sir, it's called center of gravity," answered Douhet. "Clausewitz referred to it as *the hub of all power and movement on which everything depends. That is the point against which all our energies should be directed.*"<sup>31</sup>

Avagadro nodded. "The question arises as to what is the center of gravity for supply against which we should direct our efforts? I personally believe it is the giant drug trafficking organizations and their key members. Recently, the Drug Enforcement Agency has focused on targeting drug trafficking operations, such as the cartels, through wiretaps, informants, and money laundering.<sup>32</sup> Destruction of *this* center of gravity should put the supply side in disarray.

"Now regarding demand, the National Drug Control Strategy has many short and long range goals for demand reduction of drug usage. These sets of goals revolve around 'standards' obtained during a 1988 survey of drug usage patterns. As an example, the goals related to cocaine are reflected in Figure 5:<sup>33</sup>

Objective	Short Term (1993) Reduction	Long Term (2001) Reduction
Occasional use	40 percent	60 percent
Frequent use	30 percent	65 percent
Adolescent use	60 percent	75 percent
Incidents in emergency rooms citing use of cocaine	30 percent	60 percent
Reporting of ease of purchase	20 percent	65 percent
High school seniors not disapproving of illegal drug use	40 percent	65 percent

Figure 5. Demand reduction goals for cocaine

"Earlier I mentioned a Democratic Party platform citation which referenced a 1992 study that indicated increased drug usage. Politics aside, I believe that a survey instrument and analysis based on the methodology in the 1988 study above are essential. The 1992 study conducted with a completely different methodology cannot be used to make meaningful comparisons. Thus, until the 1993 followup survey based on the 1988 study is completed, it is not known whether usage reduction objectives have been met or not. Care must be taken to ensure that survey respondents are representative of the population. Further, we must understand how the respondents were selected. Did they volunteer? Were they under pressure, from their parents for example, to provide a certain answer? I believe that these demand goals are important to keep and that the survey results are themselves MOEs for demand reduction.

"Let's take another component. There is some great work being accomplished at police departments across the country. In New York City, the police have introduced a strategy which has increased collaborative decisionmaking. Rather than looking at the drug menace as strictly a police problem, the Department has re-oriented itself toward solving the drug problem from the community perspective. It has not only established an overall Executive Drug Control Strategy Committee but has also formed borough-based and neighborhood-based drug control strategy committees which are comprised of mostly non-Department representatives. From this broad support base, the various community goals are articulated, monitored, and improved. This grass roots approach works toward demand reduction through community education and awareness. It also works toward supply reduction through sharing intelligence and harvesting cooperation from the neighborhood working together."<sup>34</sup>

"Do you see any trouble spots in the near term?" asked Douhet.

"Unfortunately, I do," said Avagadro. "I am worried about a possible downside of the North American Free Trade Agreement (NAFTA) scheduled to begin in 1994. Although NAFTA should increase trade in this hemisphere, it is precisely this trade that may provide a lucrative opportunity for the traffickers. It will be up to us to maintain the pressure on them. After NAFTA is implemented, statistical process control (SPC) techniques can be employed to look at rates of drug seizures. If they stay within the SPC boundary limits, then the counterdrug process is in control; if the rates are not within the SPC limits, then further investigation is warranted."

"Yes sir," said COL Dunangon. "We can't believe that we will ever be fortunate enough to stop all of the drug flow. Looking at outliers from the SPC makes sense, but we need to monitor society's usage rates. If surveys find that usage is increasing, then the drug seizure rates are not outliers, but rather are indicative of increased attempts to service demand."

"In this context, SPC results might be able to assist in investigating the allocation of budget resources," continued Avagadro. "I believe that a 30-70 split in resources for demand-supply reduction respectively is not the right mix, and that the ratio should incrementally move more toward the demand reduction side. We've seen demand reduction education work for smoking and DOD has made great successes in reducing its members demand for drugs. We need to target this demand reduction axis more effectively. Intuitively, I feel that approximately 50-50 would be the optimal percentage mix."

"Sir," interrupted Dunangon, "I can't fault your premise that demand reduction through education and grass roots police work are certainly important to the process and should receive

more funding. But with the uncertainties of NAFTA still on the horizon, I don't believe that we want to start cutting supply reduction resources just yet."

"In the near term I believe you are right, Colonel. I will ask the steering committee to study this budget mix."

Now Avagadro rose and walked to his white board. He began drawing a Venn diagram and labeling the various components that he had been discussing (Figure 6). He concentrated now on his main point: "In Brooklyn, I saw first hand the effects of drug abuse. Drugs shatter family structure and values. Drugs undermine our school systems and are responsible for children dropping out at an early age. Drug use spreads AIDS through the neighborhood as a result of shared intravenous paraphernalia and unsafe sexual practices. Drug cases clog the court

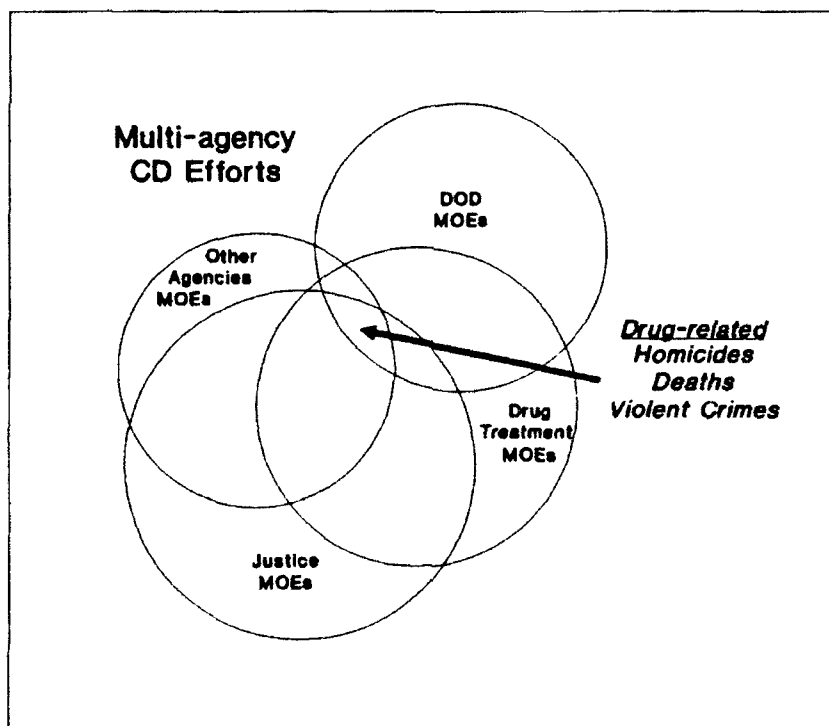


Figure 6. Street level MOEs

system and overwhelm rehabilitation facilities. The most prominent neighborhood role models are drug dealers. As a direct result of my Brooklyn experience, addressing these urgent social problems is more than my job, it is my passion.

"And society is fighting back too!" Avagadro continued. "Each agency in the CD program is making contributions to reduce supply and demand, and each agency has developed its independent MOEs. From my perspective, the significant MOEs are where the circles overlap--at the street level. All of the agencies supply reduction and demand reduction efforts are for naught if we can't see a reduction in the number of drug-related homicides, drug-related violent crimes, and drug-related deaths. The advantage of using these three measures is that they address both crime and individual usage information. We are challenged by the fact that data are often difficult to categorize as whether or not they are drug-related, and individual cases may need to be isolated. Plus, any trends developed with this data will require adjustment for population growth or decline. But the MOEs offer insight on the efficiency of the drug control policy since data on homicides, violent crimes, and deaths are available and they are all-inclusive. The data are not a result of voluntary participation as in demand reduction, and we aren't dealing with unknown 'tips of icebergs' as in supply reduction. It is a statistician's dream: we have the entire population of deaths and violent crimes to analyze, not just samples of the population. We need to standardize the definitions for these data at the national level and promulgate them down to the local levels. This also seems like a good mission for the steering committee to coordinate this effort.

Avagadro paused for effect. "The success of this steering committee will depend in part on its members understanding the value of GST and how to apply it to the problems at hand.

With your permission, I will ask your bosses to let me use both of you for a few months to represent DOD on the steering committee."

"I'd be honored," said Dunangon.

"Me too," answered Douhet. "Creating a steering committee is the catalyst that COL Dunangon and I have needed to finally bring our systems theory concept to fruition. Using this concept will allow DOD and the other task force agencies to incorporate their ongoing initiatives with the objectives of the new administration. The Clinton-Gore platform focuses more on "harm-reduction" than on enforcement. Your people-oriented vision dovetails perfectly into their tenets of community-based policing, drug treatment on demand, drug education in schools, and an effective drug interdiction program that curtails the flow of drugs to schools, streets, and communities.<sup>35</sup> However, it appears to me that they may have seriously neglected issues surrounding enforcement and incarceration. An estimate of the total governmental budget (Federal, state, and local) for drug control in 1990 was \$28 billion, of which \$21 billion went to enforcement.<sup>36</sup> This ratio will probably change as the administration emphasizes the health consequences of drug use and begins to target drug treatment systems for increased funding. Your tasking to the steering committee to study this critical budget mix will aid in determining the proper balance between demand and supply efforts. Understanding the effects of this mix on the drug universe system will ensure that enforcement is not the inadvertent billpayer. I am excited to be part of such interesting and important work. Under your direction the CD program will have the necessary leadership to combat the war on drugs. Our combined efforts will serve as the Patriot missile to defeat the 'drug SCUDs' being launched against our shores."

"I'm glad to see that you share in my passion to solve these urgent social problems. You two and the DOD are doing great work," concluded Dr. Avagadro. "Together we'll all do even better. Thanks for your briefing and your obvious enthusiasm."

"Our pleasure, sir," smiled Dunangon. The military briefers left the conference room and headed toward the elevator.

"Wanna go get lunch before we leave for the airport?" asked Douhet.

"Sure. But let me first make a quick phone call to MILPERCEN to talk about extending my current assignment at FORSCOM."

## ENDNOTES

<sup>1</sup> Gordon Witkin, "A New Assault on Cocaine," U.S. News and World Report, 11 January 1993, 21.

<sup>2</sup> Peter Reuter, "Truce in Needle Park," The Washington Post, 28 February 1993, C1.

<sup>3</sup> The White House, National Drug Control Strategy (Washington: U.S. Government Printing Office, February 1991), 3.

<sup>4</sup> PRIDE Questionnaire Report: 1991-1992 National Summary Grades 6-12, 1992, Atlanta in Mandate for Change, Ed Kilgore, (New York: Berkley Publishing, January 1993), 194.

<sup>5</sup> Thomas H. Athey, Systematic Systems Approach (Englewood Cliffs: Prentice-Hall Inc., 1982), 12-14.

<sup>6</sup> Department of Defense, The Joint Chiefs of Staff, Joint Tactics, Techniques, and Procedures for Counterdrug Operations, Joint Pub 3-07.4, Initial Draft, (Washington: U.S. Department of Defense, 15 August 1992), III-5.

<sup>7</sup> National Drug Control Strategy, 134.

<sup>8</sup> Murl D. Munger and William W. Mendel, Campaign Planning and the Drug War (Carlisle Barracks: Strategic Studies Institute, February 1991), 77.

<sup>9</sup> Department of Defense, DODI 5000.2, "Defense Acquisition Management Policies and Procedures" (Washington: U.S. Department of Defense, February 1991), 4-E-3, 4-E-4; with Department of Defense, DOD 5000.2M "Defense Acquisition Management Documentation and Reports", (Washington: U.S. Department of Defense, February 1991), 8-7, 8-8, 8-12.

<sup>10</sup> John E. Walsh, "Inadequacy of Cost per Kill as a Measure of Effectiveness", Operations Research 5 (Nov-Dec 1957): 750-764.

<sup>11</sup> United States Naval Academy, Naval Operations Analysis (Annapolis: Naval Institute Press, 1984), 10.

<sup>12</sup> Ethan A. Nadelmann, "The Case for Legalization," The Public Interest, No. 92, Summer 1988, 6.

<sup>13</sup> The White House, National Security Strategy of the United States (Washington: U.S. Government Printing Office, August 1991), 3.

<sup>14</sup> Department of Defense, The Joint Chiefs of Staff, National Military Strategy of the United States (Washington: U.S. Department of Defense, January 1992), 15.

<sup>15</sup> Richard B. Cheney, Secretary Department of Defense, Annual Report to the President and Congress, (Washington: U.S. Department of Defense, January 1993), 111.

<sup>16</sup> Joint Pub 3-07.4, Initial Draft, I-15.

<sup>17</sup> Public Law 101-189, 29 November 1989.

<sup>18</sup> Richard B. Cheney, Secretary Department of Defense, "Guidance for Implementation of the President's National Drug Control Strategy", Memorandum, (Washington: U.S. Department of Defense, September 18, 1989).

<sup>19</sup> Department of Defense, Center for Low Intensity Conflict, "CINCFOR Counterdrug Management System (CDMS)", Final Draft, (Langley AFB: U.S. Department of Defense, 5 April 1991), C-1, C-2.

<sup>20</sup> Ibid., E-2.

<sup>21</sup> Ibid., D-1.

<sup>22</sup> Cheney, Annual Report, 109.

<sup>23</sup> Russell Morrison, Colonel USAF, "Counterdrug Measures of Effectiveness, A Dilemma", Briefing Slides, Presentation at Military Operations Research Symposium, Monterey, California, 25 June 1992.

<sup>24</sup> Joint Pub 3-07.4, IV-31.

<sup>25</sup> Robert R. Peavey, "DOD Counternarcotics Program: Viable Alternatives to Measuring Effectiveness", Executive Research Project for Industrial College of the Armed Forces, (Washington: U.S. Department of Defense, 1991), 23.

<sup>26</sup> Cheney, Annual Report, 113.

<sup>27</sup> Morrison.

<sup>28</sup> CINCFOR CDMS, E-2.

<sup>29</sup> Joint Test Pub 3-07.4, VI-52.

<sup>30</sup> National Drug Control Strategy, 78-79.

<sup>31</sup> Carl von Clausewitz, On War, trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1989) 595-596.

<sup>32</sup> Witkin.

<sup>33</sup> National Drug Control Strategy, 9-18.

<sup>34</sup> Briefing and discussion as part of Army War College small group visit to New York City Police Department, 13 October 1992.

<sup>35</sup> Governor Bill Clinton and Senator Al Gore, Putting People First (New York: Times Books, 1992), 71-74.

<sup>36</sup> Reuter, C2.

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